Wheat Crop Problem – Day 1

This story is about a farmer in Cache Valley, who planted 100 acres of wheat hoping to earn $60,000 from selling the harvest. This profit represents the large part of the cash he needs to sustain the farm. However, some weeks after planting, as the crop was coming up, ½ of the field began to yellow and die. If the crop died, the farmer would lose approximately $30,000 of expected revenue. What is going on?

The first person to notice the yellowing was the farm hand Fred. “I saw the yellowing on plants as I was driving the 4 wheeler down the road. I stopped and walked into the field and it appeared that nearly all the plants where I was walking were turning yellow. I looked up and all I could see was acres of yellowing plants where the yellowing started from the bottom of the plant and continued up to the top of the shoots. There were shoots that were red or purple in color. All yellow. At that point I was really scared. What had I done to the field? I can’t afford to lose my job just because I made a mistake. I needed to look at the chemicals in the barn. As I was driving back to the barn, I began to notice that the other part of the field was normal. The plants were perfectly green and healthy. From what I could tell, about half of this field was yellow and about half was green. I was so scared for my job. We couldn’t lose half of the crop in this field. I need to get Trent out here. I’m scared.”

Robert Jones, a farmer in Cache Valley, has a farm of over 600 acres. His son, Trent Jones, manages the farm as part of the family business. Following normal planting practices, they discuss their strategy for rotating the crops to avoid the risks of monoculture farming and ensuring that the land does not become unevenly deleted of minerals and nutrients. He rotates barley, peas, soybeans and wheat employing no seed that has been genetically engineered. This farm has never utilized strip farming, although they have discussed it as something they may need to look into. He decides how to rotate based on the prevailing market prices and the history of crops on various fields in his farm.

To ensure the maximum yields of their crops, son Trent uses various herbicides, to kill broad leaf weeds. Broad leaf weeds can severely reduce the yield of about any crop. For example, 1 oat weed in 1 square foot of land, can reduce yield by up to 12%. If 5 oat weed plants grow on that same 1 square foot of land, the yield can drop by 50-60%, dramatically cutting into expected cash for this crop, pesticides are used for insect control and artificial fertilizers are used to increase yields.

Timeline:

April 5: The 105 acre tract called the south 105, is dry enough to cultivate. Cultivation is one way to reduce weeds and prepare the ground for planting.

April 20: The south 105 is planted in wheat. The planting goes as expected. Soon after the planting there was a pretty severe rainstorm. Intensive irrigation is not employed by this farm due to the high desert conditions, the need to conserve water and the desire to avoid water erosion.

May 20: The wheat begins to come out of the ground, in healthy green wheat plants.

June 15: Trent Jones notices that about ½ of the south 105, is beginning to turn yellow and the plants are withering. What is interesting is that the field is yellowing along a line that is perpendicular to the access road. It is as if someone painted the small plants yellow.

Trent calls his dad Robert to come over and look at the field to see if his experience can help determine what is going on. Is the crop at risk?

+++++++++++++++++

Robert and Trent survey the field. While some of his fields are sheltered by trees to protect against wind erosion, this field is not protected by a shelter belt. While some farms utilize contour farming or terracing, this field is 100 acres of gently sloping ground. To avoid erosion, this field has utilized a conservation tillage strategy. Did that contribute to this problem? Father and son discuss whether or not the field was sprayed with a herbicide and if so which herbicide? Even when properly applied, herbicide injury can occur depending on:

* wind and temperature, the applicator used,
* what kind of plants were grown on that field in the previous year,
* what herbicides were used to control for weeds associated with those plants,
* how the herbicides were mixed and if they were mixed with other chemicals
* and if there was a single application or double application of the chemical.

Trent reports that he began spraying the field, but had to go to town, so he turned the spraying job over to Fred their farm assistant. Fred said that he ran out of the original tank load that Trent mixed, so he mixed another spray load, using the two *Goldsky* herbicide bottles that were in the barn. One bottle was brand new and one bottle was opened but almost completely full. Fred mixed the load and went out into the field to spray. Fred then said that he ran out of that load with about 5 acres still to be sprayed, so he took a bottle of 2-4-D herbicide and sprayed the last section with that. This five acre section showed no injury and the first section that Trent started was also not injured, but the area sprayed by the second load of herbicide was the area that was yellowing.

They went back into the farm and verified that the two bottles were in fact both *Goldsky* bottles. At this point, they wondered if the *Goldsky* chemical was faulty. So they called out the chemical rep to get him involved. If the chemical was bad, and the field couldn’t be saved, the *Goldsky* rep and his company would have to come up with the $30,000 reimburse the farmer. That was going to be a battle. Had something been introduced into the field when it was left fallow? If so, the chemical rep might blame that strategy.

Note: You may be wondering why use herbicides instead of manually picking weeds out of the fields?

Good question. Why? Are there other options for keeping wheat fields free of weeds?